

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed July 5, 2002. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

I. Restriction Requirement

The Examiner required the Applicant to elect to prosecute one of two groups of claims that are alleged to be drawn to distinct inventions. In response to the restriction requirement, Applicant elected to prosecute fabric claim 1-9, with traverse. Applicant hereby acknowledges the Examiner's withdrawal from consideration of claims 10-25. As noted above, there are actually 26 claims in the case. Therefore, Applicant acknowledges withdrawal from consideration of claims 10-26.

As provided in 35 U.S.C. § 121, restriction to one of two or more claimed inventions is proper only if the inventions are "independent and distinct." In its discussion of the propriety of restrictions, MPEP § 803 further provides that if search and examination of two or more inventions can be made without "serious burden," the Examiner must examine them on the merits even if the claims are directed to distinct or independent inventions.

In the present case, Groups I-II, although not necessarily obvious in view of each other, are similar in subject matter. More specifically, each pertains to patterned (or patterning) fabric. For this reason, Applicant respectfully submits that the inventions described in these claims are not "independent" as defined in MPEP § 803 and that the restriction requirement therefore is improper as between Groups I-II. Moreover, Applicant

respectfully submits that examination of both inventions would not impose a serious burden on the Examiner in that, although separately patentable, the claims contain many similar recitations.

For the foregoing reasons, Applicant respectfully traverses the restriction requirement and requests examination of all pending claims.

II. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 1-9 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

With regard to claim 1, the Office Action states that the term "non-producer colored" is unclear because it is not defined in Applicant's specification. Applicant respectfully submits that no such definition is required in that the term "producer colored" has a well-established meaning within the art. For support of this assertion, Applicant has attached excerpts of the Hoechst Celanese Dictionary of Fiber & Textile Technology, 1990 (Exhibit A). As provided in the excerpt on page 124 of the dictionary, the term "PRODUCER-COLORED" is included as an entry and reference is made to the term "Mass-colored." The definition of "Mass-Colored" is provided on page 50 of the dictionary as "A term to describe a manufactured fiber (yarn, staple, or tow) that has been colored by the introduction of pigments or insoluble dyes into the polymer melt or spinning solution prior to exhaustion." Accordingly, the term "producer colored" used in the specification pertains to fibers that are colored by the producer during fiber manufacturing.

Although the Applicant uses the term "non-producer colored," it is believed that the meaning of this term is clear in view of the aforementioned definition of "producer colored." The prefix "non-" is commonly used in the English language to identify "not." As described in the Random House Webster's Unabridged Dictionary, second edition (1998), "non-" is "a prefix meaning "not," freely used as an English formative, usually with a simple negative force as implying mere negation or absence of something" Therefore, the meaning of the term "non-producer colored" is clear: not producer colored.

In view of the above, Applicant respectfully submits that the meaning of "non-producer colored" is clear and that the rejection as to the usage of this term be withdrawn.

In regard to the rejections of claims 8 and 9, these claims have been amended to add the word "a" before the term "dye-assistant" to remove any ambiguity as to antecedent basis. In view of these amendments, Applicant respectfully requests withdrawal of the rejection as to claims 8 and 9.

III. Claim Rejections - 35 U.S.C. § 103(a)

A. Rejection of Claims 1-7

1. Statement of the Rejection

Claims 1-7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stanhope et al. ("Stanhope," U.S. Pat. No. 5,527,597) in view of Cates et al. ("Cates," U.S. Pat. No. 5,215,545) and Johnson et al. ("Johnson," U.S. Pat. No. 4,902,300).

The rejection alleges that Stanhope discloses Applicant's invention substantially as claimed with the exception of color printing and the use of certain flame retardants. The rejection concludes, however, that in view of the Cates and Johnson disclosures, it would

have been obvious to a person having ordinary skill in the art to color print the Stanhope fabric as well as incorporate flame retardants in the Stanhope fabric. Applicant respectfully traverses this rejection.

2. Applicant's Claimed Invention

Applicant's claims describe patterned, flame resistant fabrics. As provided in Applicant's claim 1, for example, Applicant claims:

1. A patterned flame resistant fabric, comprising:
 - a plurality of non-producer colored high tenacity, flame resistant fibers;
 - a plurality of cellulosic fibers containing a flame retardant compound; and
 - at least one color that is printed on the fabric to form said pattern.

Applicant's claim 1.

3. The Stanhope Reference

Stanhope discloses a stretchable flame resistant fabric for use in constructing firefighter's turnout garments. Stanhope, col. 2, lines 38-46. The fabric includes warp yarns (11) that comprise a blend of Kevlar and polybenzimidazole (PBI). Id. at col. 4, lines 47-51. Alternatively, other materials may be used in lieu of the Kevlar and PBI blend. As stated in the disclosure, "various other types of flame resistant materials also can be used for the warp yarns in place of a KEVLAR®/PBI blend." Id. at col. 4, lines 56-57 (emphasis added). Various such materials are described in col. 4, lines 8-67.

The fabric further includes filling yarns (12) that comprise an elastic core (15) made of an elastic material such as rubber, spandex, or similar elastic material. Id. at col. 5, lines 6-10. The cores are wrapped by a wrap yarn (16, 16') that is formed "from the same flame resistant material as the warp yarns." Id. at col. 5, lines 18-23 (emphasis added).

In that Stanhope states that the warp and wrap yarns are constructed of the "same" material, and further in that nowhere does Stanhope disclose, teach, or suggest a blend of Kevlar and a cellulosic material (see the "in place of" phraseology above), Stanhope fails to disclose a fabric comprising a blend of high tenacity, flame resistant fibers and cellulosic fibers.

4. Discussion of the Rejection

As acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a proper case of obviousness by showing some objective teaching in the prior art or generally available knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See In re Fine, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, to make a proper case for obviousness, there must be some prior art teaching or established knowledge that would suggest to a person having ordinary skill in the pertinent art to fill the voids apparent in the applied reference. It is respectfully asserted that no such case has been made in the outstanding Office Action.

a) Blend of High Tenacity, Flame Resistant Fibers and Cellulosic Fibers

As described above, Stanhope fails to disclose a fabric comprising a blend of high tenacity, flame resistant fibers and cellulosic fibers. Although the Office Action is correct that Stanhope identifies Kevlar (a high tenacity, flame resistant fiber) and cellulosic material, as noted above, Stanhope teaches that these two types of materials are used "in place of" each other, not together. Furthermore, there is no teaching contained within the Stanhope disclosure that would suggest that the disclosed fabric comprise a blend of such materials.

In view of the above, and contrary to that alleged in the Office Action, Stanhope fails to satisfy the limitations of a fabric comprising "a plurality of non-producer colored high tenacity, flame resistant fibers" and "a plurality of cellulosic fibers" as is required by independent claim 1. According, these claimed features must be provided by the other references of the combination. However, the Office Action has not indicated how these claimed features would have been obvious in view of the teachings of either Cates or Johnson.

For at least these reasons, Applicant respectfully submits that the rejection is improper and respectfully requests that it be withdrawn.

b) Color Printed on a Blend of High Tenacity, Flame Resistant Fibers and Flame Resistant Cellulosic Fibers

With regard to a printed pattern of color on the claimed fabric blend, the Office Action states that Cates describes printing a camouflage pattern on aramid fabrics. Even

assuming this to be true, Cates would not render a fabric blend comprising high tenacity, flame resistant fibers and flame resistant cellulosic fibers having a color printed thereon obvious in that there is a significant difference between printing on a 100% aramid (or 100% cellulosic for that matter) fabric and printing on a blend of both aramid fibers and cellulosic fibers.

As noted in Applicant's specification, the various materials used to construct the fabric have an important effect on coloring (e.g., dyeing and/or printing) the fabric. As stated in the Detailed Description of the Invention:

As mentioned above, the difficulty in dyeing (and dye printing), high tenacity, flame resistant fabrics complicates satisfaction of the pattern requirements. The reasons for this difficulty are the same as those described in relation to fabric dyeing in related U.S. Patent Application Serial No. 09/062,805, filed April 20, 1998. As identified in that application, the flame retardants contained in FR cellulose tend to be depleted by the relatively high temperatures generally considered necessary to affix dye within flame resistant fibers such as para-aramid fibers. The depletion of these flame retardants significantly reduces the flame resistance of the cellulosic fibers and therefore reduces the flame resistance of these blends.

Applicant's specification, page 8, lines 10-18 (emphasis added).

As is further described in Applicant's specification, the inventors have discovered that, contrary to that "known" by those having ordinary skill in the art, patterns can be printed on a blend of high tenacity, flame resistant fibers and flame resistant cellulosic

fibers without unduly reducing flame resistance under certain conditions. As provided in the Detailed Description of the Invention:

The inventors have discovered that, contrary to conventional beliefs, high tenacity, flame resistant fibers such as para-aramid fibers can be dyed and/or dye printed at temperatures below 100°C if particular dye-assistants are used during fabric processing. Dyeing and/or dye printing at these low temperatures avoids flame retardant depletion. It is this discovery that has led to the determination that a pattern, such as a camouflage pattern, can be formed on a flame resistant fabric by dyeing the high tenacity, flame resistant fibers and cellulosic fibers a light base shade at a temperature below 100°C, and then printing the remaining colors of the camouflage pattern onto the blend. Processing in this manner, a strong, flame resistant BDU can be produced which substantially satisfies the pattern requirements of the military specifications identified above.

Applicant's specification, page 8, line 19 to page 9, line 5.

From the above, it can be appreciated that Cates' teaching for printing on aramids falls well short of teaching or suggesting a fabric blend of high tenacity, flame resistant fibers and flame resistant cellulosic fibers on which a color is printed. Cates provides no suggestion that the aramid printing methods could be used effectively on such blends. Moreover, a person having ordinary skill in the art would be motivated away from such a course of action, given the conventional "wisdom" in the art that such printing cannot be achieved without depleting the flame resistant cellulosic fibers of their flame retardants. Furthermore, as noted above, Cates cannot be said to provide the motivation to print on high

tenacity, flame resistant fiber and cellulosic fiber blends in that neither Stanhope nor Cates discloses such a blend.

For at least these reasons, Applicant respectfully submits that the rejection is improper and respectfully requests that it be withdrawn.

c) Flame Retardant Materials to Add to the Stanhope Fabric

With regard to the allegation that it would have been obvious to modify the Stanhope fabric by including the flame retardant materials of Johnson, Applicant respectfully submits that there is no motivation provided in either of Stanhope or Johnson for such a modification. The only motivation for such a modification is provided by Applicant's own disclosure.

Accordingly, Applicant respectfully submits that, at least for this reason, the rejection is improper and should be withdrawn.

d) Lack of Motivation to Combine

In addition to the above described defects of the rejection, Applicant respectfully asserts that the proposed combination is improper. It has been well established that teachings of references can be combined only if there is some suggestion or incentive to do so. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, there must be a teaching in the relevant art which would suggest to a person having ordinary skill in that art the desirability of making the modifications that have been suggested in the Office Action.

Applicant respectfully submits that no such motivation has been identified in the Office Action. The reason for this is understandable in that it is apparent that no such motivation exists in the applied references. Specifically, neither Stanhope nor Cates provides the motivation to combine the teachings of Cates with those of Stanhope. Similarly, neither Stanhope nor Johnson provides the motivation to combine the teachings of Johnson with those of Stanhope.

The only motivation provided in the Office Action states that the proposed combinations would have been obvious for a person having ordinary skill in the art "motivated with the expectation that the improved blend would be more economically viable and have improved flame resistant and camouflage characteristics for the fabric." Office Action, page 7, lines 9-11. As for the resultant fabric being more "economically viable," it is unclear how the proffered modifications would make the fabric more economically viable. If anything, the suggested modifications would increase the cost of the fabric.

As for providing "improved . . . camouflage characteristics," it is unclear why one would want to camouflage a firefighter (as noted above, Stanhope's fabrics are made for construction of firefighter turnout gear). To the contrary, it would make more sense to make the firefighter more visible to locate him or her in a smoke-filled building or house. This is one reason why such garments are typically provided with swatches of retroreflective material.

In view of the clear lack of proper motivation to combine, Applicant respectfully submits that a *prima facie* case for obviousness has not been made.

e) Dependent Claims

Although the focus of the above discussion has been on independent claim 1, Applicant notes that various limitations contained in the dependent claims also have not been satisfied. For example, with regard to dependent claim 7, the Office Action fails to identify where a composition of "approximately 40%" high tenacity, flame resistant fibers is disclosed or suggested by the applied references.

f) Summation

In summary, it is Applicant's position that a proper case for obviousness has not been made against Applicant's independent claim 1, or claims 2-7 which depend therefrom. Therefore, it is respectfully submitted that each of these claims is patentable over the proposed combination and that the rejection of these claims should be withdrawn.

B. Rejection of Claims 1 and 5-9

1. Statement of the Rejection

Claims 1 and 5-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Stanhope in view of Johnson and Riggins et al. ("Riggins," U.S. Pat. No. 4,898,596).

The rejection alleges that Stanhope and Johnson together disclose Applicant's invention in the manner explained in the rejection of claims 1-7 with the exception of the claimed dye-assistants. The rejection concludes, however, that in view of the Riggins disclosure, it would have been obvious to a person having ordinary skill in the art to use

these dye-assistants in relation to the Stanhope fabrics. Applicant respectfully traverses this rejection.

2. Discussion of the Rejection

As noted above, independent claim 1, and claims 5-9 which depend therefrom, require "at least one color that is printed on the fabric to form said pattern". In that none of Stanhope, Johnson, or Riggins disclose, teach, or suggest printing or a fabric on which a color is printed, Applicant respectfully submits that the proffered combination *per se* fails to render Applicant's claims obvious.

With regard to the printed color limitation, Applicant notes that this limitation is an actual, physical (as opposed to mere functional or method) limitation in that a person having ordinary skill in the art can readily identify a color that has been printed on fabric, particularly when the color is provided in a "pattern" as is also required by the claims. Moreover, printing is distinct from dyeing not only in the process used to achieve it, but in the result that occurs (*e.g.*, patterns are not formed by dyeing). Accordingly, Johnson's and Riggins' discussions of "dyeing" fail to anticipate or render obvious Applicant's claimed printed fabric blend.

For at least this reason, Applicant respectfully submits that the rejection is insufficient and respectfully requests that it be withdrawn.

IV. Newly Added Claims

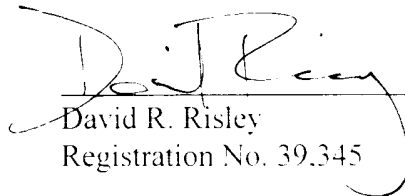
As identified above, claims 27-35 have been added into the application through this response. Applicant respectfully submits that these new claims describe an invention novel

and unobvious in view of the prior art of record and, therefore, respectfully requests that these claims be held to be allowable.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that claims 1-9 now under consideration, as well as withdrawn claims 10-26 and new claims 27-35, are presently in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

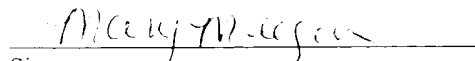
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Washington D.C. 20231, on October 19, 2002.


Signature

ANNOTATED VERSION OF MODIFIED CLAIMS TO SHOW CHANGES MADE

The following claims have been amended by deleting the bracketed ("") portions and adding the underlined (" ") portions.

8. (Once Amended) The fabric of claim 1, wherein said fabric contains a residual amount of a dye-assistant selected from the group consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide, N,N-diethylbenzamide, hexadecyltrimethyl ammonium salt, N,N-dimethylbenzamide, N,N-diethyl-m-toluamide, N-octylpyrrolidone, aryl ether, an approximately 50/50 blend of N,N-dimethylcaprylamide and N,N-dimethylcapramide, and mixtures thereof.

9. (Once Amended) The fabric of claim 1, wherein said fabric contains a residual amount of a dye-assistant selected from the group consisting of aryl ether, benzyl alcohol, N,N-dibutyl formamide, N-octylpyrrolidone, and mixtures thereof.

[22] 23. (Once Amended) The method of claim 22, wherein dyeing is conducted at temperatures not exceeding 100°C.

[23] 24. (Once Amended) The method of claim 22, wherein dyeing is conducted at temperatures not exceeding 85°C.

[24] 25. (Once Amended) The method of claim 22, wherein the fabric is dyed using a jet dyer.

[25] 26. (Once Amended) The method of claim 10, wherein the pattern comprises a camouflage pattern.

ANNOTATED VERSION OF MODIFIED TITLE/SPECIFICATION/ABSTRACT
TO SHOW CHANGES MADE

The following excerpts of the specification have been amended by deleting the bracketed ("[]") portions and adding the underlined ("___") portions.

Page 9, lines 6 through 13.

The preferred dye-assistants for dyeing the high tenacity, flame resistant fibers of the blend are selected from the group consisting of N-cyclohexylpyrrolidone, benzyl alcohol, N,N-dibutylformamide, N,N-diethylbenzamide, hexadecyltrimethyl ammonium salt, N,N-dimethylbenzamide, N,N-diethyl-m-toluamide, N-octylpyrrolidone, aryl ether, Hacomid M-8/10 (an approximately 50/50 blend of N,N-dimethylcaprylamide and N,N-dimethylcapramide), and mixtures thereof.[.] Most preferably, however, the dye-assistant is selected from the group consisting of aryl ether, benzyl alcohol, N,N-dibutyl formamide, N-octylpyrrolidone, and mixtures thereof.